

Rec'd PCT/PTO 02 FEB 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
19 February 2004 (19.02.2004)

PCT

(10) International Publication Number  
WO 2004/015572 A1

(51) International Patent Classification: G06F 9/50, 12/00

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(21) International Application Number:  
PCT/AU2003/000994

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(22) International Filing Date: 6 August 2003 (06.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/401,886 7 August 2002 (07.08.2002) US  
60/402,024 7 August 2002 (07.08.2002) US  
60/402,013 7 August 2002 (07.08.2002) US  
60/420,181 22 October 2002 (22.10.2002) US  
60/420,486 22 October 2002 (22.10.2002) US

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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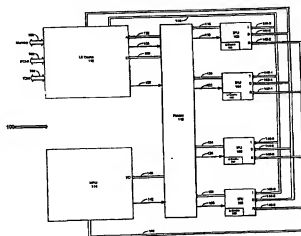
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Published:  
— with international search report

[Continued on next page]

(54) Title: APPARATUS, METHOD AND SYSTEM FOR A SYNCHRONICITY INDEPENDENT, RESOURCE DELEGATING, POWER AND INSTRUCTION OPTIMIZING PROCESSOR



(57) Abstract: An apparatus, method, and system for synchronicity independent, resource delegating, power and instruction optimizing processor is provided where instructions are delegated between various processing resources of the processor. An Integer Processing Unit (IPU) of the processor delegates complicated mathematical instructions to a Mathematical Processing Unit (MPU) of the processor. Furthermore, the processor puts underutilized processing resources to sleep thereby increasing power usage efficiency. A cache of the processor is also capable of accepting delegated operations from the IPU. As such, the cache performs various logical operations on delegated requests allowing it to lock and share memory without requiring extra processing cycles by the entire processor. With the processor, execution instructions are optimized reducing the complexity of the processor, throughput is increased as delegation to multiple processing resources is scalable, and power usage efficacy is increased as underutilized and/or waiting processing resources may sleep when not active.

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